
VICTORIAN ENTOMOLOGIST

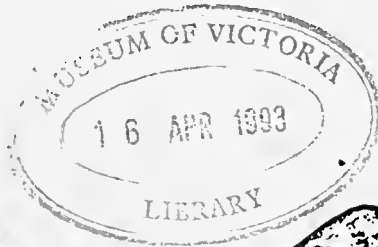


VOL. 23 No. 2

APRIL 1993

Registered by Australia Post • Publication No. VBG 0277

Price: \$3.00



MUSEUM OF VICTORIA



10500

News Bulletin of The Entomological Society of Victoria Inc.

THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc)
MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

OBJECTIVES

The aims of the Society are:

- (a) to stimulate the scientific study and discussion of all aspects of entomology,
- (b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
- (c) to compile a comprehensive list of all Victorian insect species,
- (d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

The Society's meetings are held at Clunies Ross House, National Science Centre, 191 Royal Parade, Parkville, Victoria, at 8 p.m. on the third Friday of even months, with the possible exception of the December meeting which may be held earlier. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS

Ordinary Member	\$20.00
Country Member	\$16.00 (Over 100 km from GPO Melbourne)
Student Member	\$12.00
Associate Member	\$ 5.00 (No News Bulletin)

No additional fee is payable for overseas posting by surface mail of the news bulletin. Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

Cover design by Alan Hyman.

Cover illustration of *Ogyris* sp (♀) (Lake Douglas, nr Kalgoorlie, WA) by Jenny Browning.

MINUTES OF GENERAL MEETING, 19 FEBRUARY 1993

The President, R. Field, opened the meeting at 8.06pm.

Present: M. Braby, J. Burns, P. Carwardine, K. Clark, D. Crosby, D. Dobrosak, I. & M. Endersby, R. Field, E. Grey, V. Himmelreich, D. & J. Holmes, M. & B. (and baby) Hunting, A. Kellehear, P. Kelly, M. Malipatil, T. New, M. Schutze, D. & N. Stewart, M. Stone, K. Walker, S. Watson, R. Vagi.
Visitors: P. Barden, T. Byrne, D. Meehan, C. Meehan, K. Turney.

Apologies: None received.

Minutes: Minutes of the December 1992 general meeting (*Vic. Ent.* 23: 1-3.) were received (D. Holmes/K. Clark) and accepted.

The President introduced the speaker for the evening, Dr Tim New. The title of Tim's talk was a "Mt. Piper Report". This is one of the many conservation projects with which Tim is currently involved. He explained the rationale behind the project, its objectives and problems. Tim livened up the evening by introducing a philosophical debate on the values of funding such projects. Many questions resulted and the President proposed a vote of thanks to the speaker.

The meeting had a second speaker for the evening, Mr Michael Braby. Michael is currently completing his Ph.D. degree at the James Cook University, Townsville and returned home for some cooler weather, a break from his studies and to catch up with his friends. He explained the purpose of his studies and showed a number of slides of his study subject, the helena brown, *Tisiphona helena* (Olliff), its high altitude habitat and the foodplant *Gahnia* spp. Again the President proposed a vote of thanks to the speaker.

Correspondence: Detailed. Received (T. New/J. Burns)

Treasurer's Report: Ian Endersby tabled his report inclusive to the 19 February 1993.

General Account	
SBV Bank Account	\$3012
Term Deposit due	
24.11.97	\$ 200
Total:	\$3212
Le Souef Award Account	
SBV Bank Account	\$ 293
Term Deposits due	
14.6.95	\$1400
24.11.97	\$ 500
Total:	\$2196
Junior Encouragement Fund	
SBV Bank Account	\$ 154
Term Deposit due	

	24.11.97	\$ 300
Total:		\$ 454

Membership	
Country	69
Metropolitan	36
Student	3
Life	3
	111
Associate	5
	116
Subscribers	12
Received (Endersby/Holmes)	

Editor's Report: Mali reported to members on the cover design, colour and paper texture used in the first issue of volume 23. There were a few printing problems and these should not occur in the following issues. Luckily the articles used in the last issue arrived just in time for the publication and again Mali is calling for paper to be submitted.

Excursions: Peter Carwardine reported on the recent successful weekend excursion to Licola. Nineteen adults and their families attended and while collecting was restricted, due to National Park regulations, all enjoyed the weekend. A night light trap set up at the camp site proved to be very successful.
Peter Kelly paid a tribute to Peter Carwardine for the time and effort he had put into the organisation of this successful and enjoyable excursion.

General Business:

1. Nominations:
Dr. Robert Baird
Melbourne: Ordinary Membership
Nominated by: Ian Endersby
Seconded by : Ross Field

Ms Tina Wilson
Ballarat: Country Membership
Nominated by: Ross Field
Seconded by: Ken Walker

In accordance with the Society rules, the elections will be held over until the April meeting.

Election:
Michael Barnett: Country Membership

There was a call for election by a show of hands.

2. Joyce Holmes reported to the meeting on her recent visit to

Mary LeSouëf. Mary had sent her kind regards to the Society.

3. Ken Walker reported that on the 5th of February 1993 a Tailed Emperor butterfly was recorded flying in Mildura.

4. Ian Endersby brought to the attention of members an insect program to be run by Janet and Paul Horne on February 26-28 at the Rotamah Island Observatory.

The President thanked the guest speaker again and members for their attendance. The meeting closed at 9-48pm.

MINUTES OF COUNCIL MEETING, 19 MARCH 1993

The President, R. Field, opened the meeting at 8.08pm.

Present: P. Carwardine, D. Dobrosak, I. Endersby, R. Field, M. Malipatil, K. Walker.

Apologies: M. Hunting, T. New, B. Vardy.

Minutes: Minutes of the November Council Meeting (*Vic. Ent.* 22(6): 127-128) were discussed and passed. (Accepted Malipatil/Carwardine).

Correspondence: Detailed and received. (Carwardine/ Endersby)

Treasurer's Report: Financial Statement as of 20 November 1992 was received from I. Endersby as follows:

General Account	\$2951
Le Souëf Award Account	\$2209
Junior Encouragement Fund	\$ 454

Membership:	
Country	69
Metro	36
Student	3
Life	3
Joint	5
Total	111

Subscribers	12
-------------	----

Ian noted that there are 40 unfinancial members. They will receive a reminder in the next issue.
Report accepted. (Endersby/Carwardine).

- Editor's Report:** Mali reported that several small articles were in hand for the next issue, though nothing is in reserve for the following issue. Mali also discussed the need for new envelopes and tabled a quote. Ross will investigate the cost of printing the envelopes separately.
- Excursions:** Peter briefly reviewed the successful excursion to Licola and canvassed several future sites.
- General Business:**
- (1). Committee reports.
Through the Secretary, Mark Hunting tabled a discussion copy of the operating procedures and terms of reference for the ENTRECS committee. Discussion ensued and it was decided to send copies to council members not present and to finalise the draft at the next Council meeting.
 - (2). Science Talent Search Awards.
Ian Endersby had received a request from the Science Talent Search Committee for our donation. He will forward \$50 from the Junior Encouragement Award fund.
 - (3). Annual General Meeting Notice.
Ian Endersby tabled a notice for the Annual General Meeting to be circulated in the April issue.
 - (4). Subscription Rates.
A member wrote and requested Council review current subscription rates. Council discussed the matter and decided to retain the current status.
 - (5). Shane McEvey wrote a letter to the Society thanking members for the help he had received in his junior years from 1969 and wishes the Society every success for the future. Shane has decided not to renew his membership due to changed circumstances.
 - (6). Peter Carwardine raised the possibility of a Society Permit to collect in National Parks when on Society excursions. Ross Field to investigate.

The meeting closed at 9.40pm.

A NEW LARVAL HOST PLANT FOR THE COMMON IMPERIAL WHITE BUTTERFLY,
DELIAS HARPALYCE (DONOVAN) (LEPIDOPTERA: PIERIDAE)

Michael F. Braby

Department of Zoology, James Cook University of North Queensland, Townsville, Qld. 4811

Abstract: The grey mistletoe *Amyema quandang* (Lindl.) Van Tiegh. (Loranthaceae) is confirmed as a larval host plant for the common imperial butterfly *Delias harpalyce* (Donovan). Comments are made on the species' seasonality and on the frequency of use of *A. quandang*.

Introduction

The common imperial white butterfly, *Delias harpalyce* (Donovan), is known to utilise three mistletoe (Loranthaceae) species in the Melbourne area, viz. *Amyema miquelii* (Lehm. ex Miq.), *A. pendulum* (Sieber ex Spreng) and *Muellerina eucalyptoides* (DC) B.A. Barlow, parasitising various eucalypts and acacias (Braby and Douglas 1992). The record of *Amyema quandang* (Lindl.) Van Tiegh. by Condrón (1974) was considered unconfirmed (or perhaps unreliable) because the reference appeared as an anecdotal note in the minutes of the *Victorian Entomologist*, and there is no other record of this host in the literature. Furthermore, during our study we did not find the early stages of *D. harpalyce* on this mistletoe. According to Nigel Quick (pers. comm.), however, the host plant record was authentic; the early stages were located on *A. quandang* near Launching Place, about 55 km E of Melbourne. More recently, I located several *D. harpalyce* cohorts on *A. quandang* near Healesville, about 50 km ENE of Melbourne, and these observations confirm the listing of this mistletoe as an additional larval host plant for the butterfly.

Observations

On 19 December 1992, two *D. harpalyce* cohorts were located on the foliage of *A. quandang* parasitising *Acacia baileyana* and *A. melanoxylon* approximately 4 km SE of Healesville. On one mistletoe plant (parasitising *A. baileyana*) were 20 black pupal exuviae and a rather large pupal web. The second cohort comprised 11 black pupal exuviae situated on another clump about 3m from ground level. Both cohorts presumably were of an earlier winter generation. A dead withered female which failed to fully expand her wings was noticed attached to the pupal web on the second clump. Approximately 60-70 yellow *Delias* eggs laid in a compact cluster on a small terminal leaf were also located on the host parasitising *A. baileyana*. These were collected and the larvae reared in captivity on the foliage of *A. quandang*. However, to some disappointment, these all produced another fine species well known to utilise *A. quandang*, the related *D. aganippe*! [This was an unexpected result because *D. nganippe* is quite scarce in the tall forests which clothe the wet mountains east of Melbourne, and is much more common in the drier eucalypt forests west of Healesville].

On 7 February 1993, I visited Healesville again in company with Fabian Douglas and we checked the same two clumps of *A. quandang* which supported the remnant early stages of *D. harpalyce* seven weeks earlier. To our even greater surprise, 26 orange *D. harpalyce* pupae (7 of which were dead) were located on an adjacent clump of *A. quandang* about 3m distant from one of the hosts where the original cohort was located on *A. baileyana*. The foliage of this latter clump had been completely stripped. As little foliage had been eaten on the other clump which supported the pupae, I can only assume the eggs of this summer brood were laid on the clump with the old winter cohort and the larvae had wandered off to pupate after exhausting their food supply. What was curious was the fact that no larvae were present on these mistletoe clumps when I examined them in mid December. Hence, either I missed detecting the eggs or early instars of this second brood or the eggs were laid very soon after my visit on 19 December. Eleven of the orange pupae were collected by Douglas and he recorded the following dates of emergence: 10 February (2♀), 11 February (3♀, 4♂), 12 February (2♀). This suggests that the developmental period of this summer generation was of the order of 7-8 weeks (c. 52-54 days) under field conditions, if it is assumed that eggs were laid around 19 December.

Discussion

The extent to which *D. harpalyce* utilises *A. quandang* is not clear. Although the mistletoe grows commonly on acacias on the slopes and flatter country east of Melbourne it may not represent a preferred host. For example, at Healesville and in the Hoddles Creek - Woori Yallock area (near Launching Place) where the butterfly is common, I searched many clumps (of the order of 300-400) in January-February 1993 but did not find the early stages on this host. The only stages located were two cohorts on *Muellerium encalyptoides* at Hoddles Creek: 48 orange pupae on 23 January, and 9 orange pupal exuviae on 21 February. Furthermore, one of the cohorts (the 48 pupae) was situated on a mistletoe clump parasitising a 15m high *Acacia dentibata* tree on which I counted no less than 48 individual clumps representing three species, *M. encalyptoides*, *Anyemum pendulum* and *A. quandang*. However, *A. quandang* was by far the most abundant species with 30 (63%) clumps, *A. pendulum* was represented by 14 (29%) clumps, while *M. encalyptoides* was comparatively rare with only 4 (8%) clumps recorded. Hence, the absence of *D. harpalyce* on the other more abundant mistletoe species in this instance may suggest a preference for *Muellerium* over *A. quandang*.

D. harpalyce is currently believed to be bivoltine with adults of the first (winter) generation emerging in early spring (i.e. September-October) and the second brood during late spring-early summer (i.e. November-January) (Braby and Douglas 1992). The presence of pupae at Healesville in early February, however, suggests a much faster development (c. two months) than hitherto believed. A similar developmental time during summer has also been recorded by Kelynn Dunn: eggs collected in December 1984 from Barrington Tops, N.S.W. yielded adults two months later in February 1985 when larvae were reared indoors at Canberra. This clearly indicates the species has a relatively fast developmental phase during summer and suggests the likelihood of a third generation during the season. That is, if the emergence of the second brood is during November-December, *D. harpalyce* should be able to complete a third generation by January-February or early March. Such a developmental pattern would account for the presence of eggs in December and pupae in late January-February, as well as the single cohort we recorded in March. The next generation probably surpasses the winter as late instar larvae/pupae, but some individuals appear to emerge before this as freshly emerged adults have been recorded in late autumn-winter (Braby and Douglas 1992). Alternatively, during hot summers when the species becomes scarce in the foothills of Melbourne (and the

butterfly is thought to move into the montane areas) (Douglas and Braby 1989) only two generations may be achieved.

References

- Braby, M.F. & Douglas, F. 1992. Observations on the biology of *Delias harpalyce* (Donovan)(Lepidoptera: Pieridae) near Melbourne, Victoria. *Australian Entomological Magazine* 19: 9-18.
- Condron, R. 1974. In Exhibits. *Victorian Entomologist* 4: 54.
- Douglas, F. & Braby, M.F. 1989. A note on the effects of temperature on the early stages of *Delias harpalyce* - possible constraints on distribution. *Victorian Entomologist* 19: 65-68.

A MIGRATION OF *DELIAS HARPALYCE* (DONOVAN) (LEPIDOPTERA: PIERIDAE)
IN THE HUNTER VALLEY, NEW SOUTH WALES

C.N. Smithers

Research Associate, Australian Museum, Sydney, NSW 2000

A summary of what little has been reported on the migration and aggregation of *Delias harpalyce* (Donovan) (Imperial White Butterfly) has been published (Smithers 1983). Williams (1929) records it as having annual westerly migrations in Victoria but provides little detail.

D. harpalyce is essentially a butterfly of south eastern Australia. It is common in eastern Victoria and south-eastern New South Wales but is infrequently encountered in northern New South Wales and southern Queensland. Regular records of butterflies have been kept at Tuglo Wildlife Refuge (30.14S, 151.16E, at 750m), in the Hunter Valley, New South Wales, for many years but this species has been seen on only four occasions. On the 29 September 1983 large numbers were seen flying around one Eucalypt tree. On 15 October 1983 and 17 January 1987 single specimens were seen.

On 31 January 1993 a northerly migration was seen at Tuglo Wildlife Refuge. The first specimen was seen at 10.00 hrs and the last at 16.00 hrs. All were flying strongly with typical migratory persistence at an average frequency of one about every 4-5 minutes across a front of 75m, making it an obvious and substantial population movement.

This appears to be the first record of migration of *D. harpalyce* outside of Victoria and the only one in a northerly direction.

The relationship, if any, between the aggregations around individual trees which have been reported for this species and its migrations are not known.

References

- Smithers, C.N. 1983. Migration records in Australia. 4. Pieridae, other than *Anaphaeis java tononia* (Fab.). *Australian Entomological Magazine* 10(4): 47-54.
- Williams, C.B. 1929. Evidence for the migration of butterflies. *Bulletin de la Societe Entomologique d'Egypte* (N.S.) 13:193-210.

OVIPOSITION AND TERRITORIAL BEHAVIOUR IN *TOXIDIA RIETMANNI*
RIETMANNI (SEMPER) (LEPIDOPTERA: HESPERIIDAE: TRAPEZITINAE)

Kelvyn Dunn
Australian Environmental Studies
Griffith University, Nathan, Qld 4111

Abstract: Oviposition behaviour of *Toxidia rietmanni rietmanni* (Semper) in south-eastern Queensland is described and discussed. A host plant is verified as *Oplismenus hirtellus imbecillis* (R.Br.) U.Scholz and another host, *Otocoloa gracillima* C.E. Hubbard, is recorded (both Poaceae). Females oviposit on nearby debris after tactile contact with host grasses. Aspects of male territoriality and general adult behaviour are compared with literature records.

Introduction

The White-brand Skipper, *Toxidia rietmanni*, is a comparatively uncommon and localized butterfly with two subspecies confined to eastern Australia. The northern subspecies *parasema* is rare being known from only nine sites (Dunn unpubl. data), and is confined to a very limited area of north-eastern Queensland. The nominate subspecies, *rietmanni*, has an extended distribution ranging from central Queensland to southern New South Wales and is known from at least 67 sites (Dunn unpubl. data) varying from sea level (Atkins 1988) to "3500 feet" [about 1067 m] (Morton 1972). In the McPherson phytogeographic region [SE Qld & NE NSW] (see Dunn & Dunn 1991 p.59) adults are present from September through to April (Dunn & Dunn 1991 p.160). The species has been reported to be closely associated with the fringes of lowland rainforest and vine thickets (McCubbin 1971, Wilson 1984, Atkins 1988) and my personal experience confirms this, except at Saltwater Creek near Maryborough Qld where the species inhabits river mangrove ecotone, and nearby at Pialba adults occur in a residential garden (P.J. Fox pers. comin). The sexes can be separated immediately by the presence of a sex brand in the male and its absence in the female.

To date, on the Griffith University campus at Nathan, south-eastern Queensland, adults have been found to be conspicuous in spring (1992) and again in summer (1993). The spring generation emerged in late September but by early November only females remained. A small number of worn females appeared sporadically at the site up until January. In late January the next generation appeared and males were locally abundant during February. In New South Wales the species has at least three generations per year (Atkins 1988) and an autumn brood is likely in south-eastern Queensland. On campus the species breeds adjacent to Mimosa Creek, in a paperbark swamp with vine thicket surrounded by extensive *Xanthorrhoea-Eucalyptus* woodland which extends into Toohey Forest, an area rich in trapezitine skippers. A brief description of this campus woodland habitat was given by Hawkeswood (1990).

Observations

General adult behaviour: Almost daily observations on this species, particularly during October, commenced at around midday and continued for varying periods into the early afternoon (until 2pm EST). It was at these times that both sexes were very active. Because the vine thicket is situated in a shallow gully and surrounded by tall paperbark trees the

breeding areas become shaded by about 4 pm EST. It appears that the hours about midday would be the peak activity period at this site.

Adults of both sexes were intensely localized in swampy areas of profuse grass growth adjacent to the more permanent pools along Mimosa Creek and males established perch sites in the vicinity of, and overlooking areas of, host plants. Despite the localized habits of the species (Atkins 1988) females disperse short distances beyond breeding areas. Wandering females have been seen resting in woodland up to about 100m from the main population density areas. Undoubtedly, if suitable grasses are present in such areas the species would attempt to colonise irrespective of the habitat involved but the hosts utilized on campus are usually confined to shady areas (Stanley & Ross 1989) and appear to be absent from the more exposed and drier adjacent woodland.

At vantage points overlooking grassy patches amongst which the foodplants grow, males regularly established perch sites. Perch sites were always situated in direct sun on leaves of shrubs and trees from 0.5 to 4 metres above the ground: roughly similar heights to those reported by Atkins (1988). When perched during spring, males of *T. riemannii* rested on the exposed surface of leaves in a manner typical of other trapezitine skippers, usually with their wings opened in a V-shape with an apex angle of about 70-80° (estimated), however, in hot weather during February they often perched with closed wings. When settled lower down (at 2m) the whitish sex brand, characteristic of this species, is usually visible to the observer and assists in immediately distinguishing fresh specimens from other similar species.

Females behaved in a similar fashion to males but appeared to settle far less often and with their wings closed (or nearly closed but still held vertical above the body due to the broad width of the thorax enabling the sex to be diagnosed without handling). They were generally seen to fly quickly over and about clusters of swamp grasses, such as *Leersia*, growing up adjacent tree trunks and over fallen logs. Like the perching males, females normally settled on dicotyledonous plants and paid little attention toward these neighbouring monocots. The abundance of adults during spring in the vicinity of the Swamp Rice Grass, *Leersia hexandra* Swartz, appears to be coincidental since intensive and regular searching for lepidopteran larvae on this coarse grass revealed only hesperiine juveniles, larvae of a species of moth which creates hesperiine-like shelters but skeletonizes the leaves, and numerous eggs and larvae of various instars of the ubiquitous satyrine *Melanitis leda* which at times devoured the plant with vigour. In the late summer brood male territories transferred about 10 metres downstream to a cooler filtered sunlit grassy clearing beneath the vine thicket canopy and were not seen perched above the Swamp Rice Grass which, incidentally, received intense afternoon sunshine in summer.

Females of *T. riemannii* were more easily found and tracked after the peak in male abundance toward the end of each generation. Both sexes normally darted quickly about and their flight varied in height from near ground level to more often a few metres above ground. These observations are consistent with those briefly outlined by Atkins (1988).

Female oviposition behaviour: On 3 November at about 1:30pm (EST), a female in good condition with no obvious wing damage was observed fluttering very close to the ground. This behaviour contrasted with the earlier behaviour when males were present, and it seemed likely an oviposition site was being selected. She rested periodically on foliage of shrubs about 30cm above the ground, situated adjacent the grass over which she had been flying. No other adults were conspicuous at this time and she was not disturbed.

This female's flight was not rapid, like the females observed previously, but was slow and fluttery. She flew irregularly over new growth of a small (then variably 2.5cm high but since grown) grass, *Oplismenus hirtellus imbecillis* (R.Br.) U.Scholz (Poaceae), commonly known as 'Australian basket Grass,' which was growing across the ground and beneath fallen timber and herbage near a more permanent wet spot, generally in lightly shaded areas or on ground which received filtered sunlight. Whilst fluttering in the oviposition flight the female sometimes reversed direction and came fluttering back along its previous path to return once again to the exact area she had inspected seconds earlier. When away from the host plants the female rose to about 30cm above ground and then changed direction. On approaching the *O. hirtellus* grass she dropped again to about 1cm above the blades with which she twice made tactile contact with her legs whilst continuing the fluttery motion of her wings. These blades were later examined and no eggs were laid. She then flew 30cm away and immediately settled on debris, with wings closed above her thorax, and remained momentarily quiescent. Then with her head facing upwards but not quite perpendicular to the ground, she extended and curved her abdomen beneath herself forming an abdominal crescent shape, and deposited a single egg on a fragment of dry fern frond over which *O. hirtellus* was sprawling. Immediately after the egg was deposited the female took to flight and was not seen again in the general area.

A second observation was made during exceptionally hot (about 35°C) and noticeably humid weather on 26 February 1993 at exactly 1:10pm (EST). In a glade a worn female in oviposition flight was seen landing repeatedly on leaf litter and debris near a different forest grass, *Ottochloa gracillima* C.E. Hubbard (Poaceae), which was growing in filtered sunlight and areas in shade. Although I was unable to investigate these particular litter sites without possible disturbance it was clear by her behaviour that she had oviposited on each occasion. Each oviposition site was about 30cm apart and between sites the female fluttered about 15cm above this short (10cm high) soft grass. Although most oviposition sites were situated in filtered sunlight, her final two were in shade. On these last two occasions I clearly observed her as she settled horizontally on the twigs and debris where she remained stationary as she deposited a single egg on the litter, each site within about three centimetres of the nearest leaf blades of *O. gracillima*. After completing this multiple oviposition session which had lasted two or three minutes the female settled with wings closed about 60cm away on a leaf of a low growing vine [*Smilax*] about 30cm above ground overlooking the host plants. I then removed her for the purpose of confirming her species identification. Tactile investigation of the *Ottochloa* grass was not observed since I arrived after oviposition was in action and I was unable to count all sites selected but estimate six or more excluding those before I arrived. The leaves of the grass were yellowed in places and looked rather matured or perhaps suffered a nutrient deficiency.

Discussion of oviposition behaviour

Detailed oviposition behaviour in this species has not been documented previously. Atkins (1988) mentioned observing female oviposition in connection with an unidentified soft grass (which could have been *Oplismenus*) growing in a sunny clearing, in seemingly similar habitat to this site at Nathan. In the same paper Atkins described and illustrated the previously undocumented life history. Common & Waterhouse (1981) had earlier communicated an observation of this species laying eggs on dead twigs on the ground, but Atkins noted that eggs were deposited singly beneath leaf blades or on grassy stems, in addition to on nearby debris, and apparently in sunshine. In my observations, oviposition was on debris in filtered sunlight and occasionally in shade.

Atkins (1988) initially recorded the host of *T. rietmanni* at Seal Rocks NSW as an unidentified member of Poaceae, but later Atkins (1990) specified the host plant at another site in wet rainforest in New South Wales as *Oplismenus* sp., probably either *O. imbecillis* (sic.) or *O. acuminus*. Thus Atkins (1990) *Oplismenus* record could well have referred to *O. hirtellus*, although *O. acuminus* may also be utilized by this skipper. The identity of *Oplismenus hirtellus imbecillis* and *Otochloa gracillina* as the hosts at Nathan was facilitated by the presence of seed heads, and to the non botanist these two grasses may appear rather similar, but the most obvious structural difference between *Otochloa* and *Oplismenus* is that in *Oplismenus* the spikelets are awned (C. Hohnen pers. comm.). Burbidge & Jacobs (1984) described both species as weak perennial grasses with trailing creeping stems, and commented that *O. hirtellus* occurs in areas of light shade and high rainfall habitats, particularly rainforested areas, whereas *O. gracillina* is uncommon and grows only in shady places within forests. Although neither *O. hirtellus* or *O. gracillina* were listed by Coutts & Catterall (1982) in their flora checklist of the Toohey Forest, the area of woodland connecting the Nathan and Mount Gravatt campuses, species such as those of *Oplismenus* and similar grasses are easily overlooked when compiling regional lists of macro flora (R. Coutts pers. comm.), and thus their omission does not render any doubt on these identifications.

In trapeziline skippers such as *Hesperilla flavescens* (Dunn & Atkins 1986), *H. donnyssa* (Fisher 1978), *Trapezites symmonus* (Dunn 1993) and *Toxidia rietmanni* the oviposition behaviour does not involve any walking or crawling after landing, whereas females of *Procidosa polysema* (Atkins 1973), *Trapezites luteus* (Fisher 1978) and *Hesperilla malindeva* (Dunn & Manskie 1988) crawl in reverse down towards the base of the host before laying. All the above species deposit their eggs on the host, but both *T. rietmanni* and *T. symmonus* often lay on debris, and the oviposition behaviour in the latter species appears the least complex with the female settling very quickly (Dunn 1993). Thus *T. rietmanni* exhibits rather similar behaviour to *T. symmonus* but the oviposition flight above the host plants is maintained for a longer period in *T. rietmanni* and the female rests between egg laying sessions. In *T. symmonus* host examination is very rapid with wing striking, but in *T. rietmanni* tactile contact involves only the tarsi of the legs. No tactile examination of the hosts prior to site selection has been reported for the other species.

Typically female trapeziline skippers adopt the familiar fluttery flight upon approaching the host plant and then seek oviposition sites, and *T. rietmanni* is no exception in this regard. Fisher (1978) attributed this remarkable change in flight pattern to a post-ecital response, but observations by Dunn (1993) indicate that flight behaviour is modified when the mated female is in close proximity to larval host plants. Fisher's observations on *H. donnyssa delos* involved females flying about the host plant and therefore also support this. The term 'oviposition flight' coined by Atkins (1990) is used and is useful for referring to this specific feminine behaviour.

Acknowledgments

I wish to thank the Queensland Herbarium staff, C. Hohnen and H. Dillewaard, for their identification of the *Otochloa*, *Oplismenus* and *Leersia* specimens. Also Andrew Atkins (University of New Castle) and Ian Faithfull (Institute of Plant Sciences) for their comments on this communication, and Bob Coutts (Griffith University) for advice.

References

- Atkins, A. 1973. A new genus *Procidosa* for an Australian skipper, *Pasina polysema* (Lower) (Lepidoptera: Hesperiiidae, Trapezitinae). *Journal of the Australian entomological Society* 12: 253-260
- Atkins, A. 1988. Life Histories of *Pasina tasmanica* (Miskin) and *Toxidia vietnamii* (Semper) (Hesperiiidae: Trapezitinae). *Australian Entomological Magazine* 14: 93-97
- Atkins, A. 1990. New larval foodplants for three Australian skippers (Lepidoptera: Hesperiiidae) from the central coast of New South Wales. *Victorian Entomologist* 20: 61-62
- Atkins, A. & Dunn, K.L. 1986. A description of the egg of *Hesperilla flavescens flavescens* Waterhouse. *Victorian Entomologist* 16: 33
- Burbridge, N.T. & Jacobs, S.W.L. 1984. *Australian Grasses*. (Rev. Ed.) Angus & Robertson, Sydney. (Revised edition of Burbridge 1966 of same title).
- Common, I.F.B. & Waterhouse, D.F. 1981. *Butterflies of Australia*. Revised Edition. Angus & Robertson, Sydney.
- Coutts, R. & Catterall, C. 1982. *Identifying the Plants of Toobey Forest*. Revised Edition. Ecos Educational Publications, Nambour Qld.
- Dunn, K.L. 1993. Oviposition and territorial behavior in *Trapezites synuonius synuonius* Hubner (Lepidoptera: Hesperiiidae: Trapezitinae). *Victorian Entomologist* 23: 6-9
- Dunn, K.L. & Dunn, L.E. 1991. *Review of Australian Butterflies, Distribution, Life history and Taxonomy*. Published by the authors, Melbourne.
- Dunn, K.L. & Manskie, R.C. 1988. Ovipositing behaviour in the skipper *Hesperilla malindeva* Lower (Lepidoptera: Hesperiiidae: Trapezitinae). *Victorian Entomologist* 18: 48-49
- Fisher, R.H. 1978. *Butterflies of South Australia*. Government Printer South Australia.
- Hawkeswood, T.J. 1990. Butterflies as possible pollinators of *Bursaria spinosa* Cav. (Pittosporaceae) at Brisbane, Queensland, Australia. *Giornale Italiano di Entomologia* 5: 89-93
- McCubbin, C. 1971. *Australian Butterflies*. Thomas Nelson (Australia) Ltd.
- Morton, D.E.A. 1972. Butterflies observed at Gloucester Falls 21-23 Jan. 1972. *Victorian Entomologist* 2: 16
- Stanley, T.D. & Ross, E.M. 1989. *Flora of South-eastern Queensland*. Volume III. Queensland Department of Primary Industries, Brisbane (Misc. Publ.).
- Wilson, W.J. 1984. New distribution records for some Queensland and New South Wales butterflies. *Australian Entomological Magazine* 11: 59

COMMON IMPERIAL BLUE, *JALMENUS EVAGORAS EVAGORAS* (DONOVAN),
AN ADDITIONAL WATTLE PARK BUTTERFLY

Ian Faithfull
7/20 Adam Street, Burnley, Vic. 3121

Wattle Park, Burwood, is a significant remnant vegetation reserve surrounded by housing in the eastern suburbs of Melbourne. Braby & Berg (1987, 1989) recorded eighteen butterfly species from the Park including several now rare in suburban Melbourne. Faithfull (1989) added a further two species. Burns (1989) suggested that *Lucia limbaria* Swainson might also be present, but it has not been detected to date. The future of the reserve is in some doubt and a new management plan is being prepared by Melbourne Water, the Park management authority, the previous plan having been a target of trenchant criticism.

The importance of the site for butterflies is reinforced by the finding of a twenty-first species, the Common Imperial Blue, *Jalmenus evagoras evagoras* (Donovan). A single adult female was discovered by Paul Barden and I on 7 February at 8.20 pm ESST at rest on a seed head of *Paspalum dilatatum* (Poaceae) in open woodland in the south eastern quarter of the Park. It was in excellent, unworn condition. The Park has suitable food plants, ants (Barden, in preparation) and other habitat features available to enable the species to successfully breed, if it is not already established.

References

- Barden, P.A., (In preparation). A preliminary survey of the ant (Hymenoptera: Formicidae) fauna of Wattle Park.
- Braby, M.F. & Berg, G.N., 1987. A preliminary search for *Trapezites symmonius* Hubner at Wattle Park, with notes on other species. *Victorian Entomologist* 17: 49-51
- Braby, M.F. & Berg, G.N., 1989. Further notes on butterflies of Wattle Park, Burwood. *Victorian Entomologist* 19: 38-42
- Burns, J., 1989. Additional note by this editor. *Victorian Entomologist* 19: 86
- Faithfull, I., 1989. Two additional Wattle Park butterflies. *Victorian Entomologist* 19: 86

A NEW FOOD PLANT RECORD FOR *HYPOCHIRYSOPS THEON MEDOCUS*
(FRUHSTORFER) (LEPIDOPTERA : LYCAENIDAE)

David Lane
3 Janda Street, Atherton, Qld 4883

Introduction

The epiphytic fern *Platyserium hillii* (Polypodiaceae) is here recorded as a foodplant for the lycaenid butterfly *Hypochrysops theon medocus* (Fruhstorfer) at Iron Range, northern Queensland.

Observations and Discussion

Hypochrysops theon is a striking and well known species of butterfly, occurring in northern Queensland as two sub-species - *H. theon medocus* (Fruhstorfer) ranging from Cape York to Iron Range, and *H. theon cretatus* Sands known so far from the Rocky River, north of Silver Plains (Sands 1986).

Larvae of this butterfly are known to feed upon the fronds and within the rhizomes of the epiphytic or terrestrial fern *Drynaria quercifolia* (Polypodiaceae), and are attended by the small ant *Philidris cordatus* (= *Iridomyrmex cordatus* (F. Smith)) (Common & Waterhouse 1981, c.f. Atkins 1992). *D. quercifolia* is a climbing fern which attaches itself either to tree trunks or boulders on the rainforest floor, and usually has a growth habit that does not see the plant extend much more than about two metres above ground level. The larval feeding behaviour of skeletonising the fronds of this fern gives the plant a "scorched" appearance, especially when larvae are numerous.

During a visit to Iron Range in July 1992, it was of considerable interest to observe a typical skeletonising feeding pattern on the fronds of the epiphytic fern *Platyserium hillii*. A close examination of this plant revealed numerous hatched eggs on the base of fronds and on nest leaves, together with larvae of various instars of *H. theon* sheltering within the overlapping basal nest leaves. Numerous *P. cordatus* ants were in attendance of these larvae. These larvae were transferred to Atherton and successfully reared through on *P. hillii*.

The *P. hillii* was growing in the fork of a rainforest tree about four metres above ground level, and in an area surrounded by *D. quercifolia* growing on adjacent tree trunks and surrounding boulders. Much feeding behaviour of *H. theon* larvae was evident on *D. quercifolia* in this general area, with numerous larvae and pupae being located.

The incidence of *P. cordatus* ants and ant colonies in this general area was extremely high, with the ants often utilising the hollowed out rhizomes of *D. quercifolia*, as well as loose bark, rocks and debris as sites to establish colonies. The presence of *P. cordatus* ants on the rainforest tree supporting *P. hillii* may have been a factor in influencing *H. theon* females to oviposit on this fern. It is interesting to learn of an alternative foodplant for this striking species of butterfly.

Acknowledgments

I wish to thank Dr A K Irvine, CSIRO, Atherton for his assistance and identification of *Platyserium lillii*.

References

- Atkins, A. 1992. On the taxonomic changes to lycaenid - associated ants of the genus *Iridomyrmex*. *Victorian Entomologist* 22: 72-73.
- Common, I.F.B. & Waterhouse, D.F. 1981. *Butterflies of Australia*. Angus & Robertson, Sydney.
- Sands, D.P.A. 1986. *A revision of the Genus Hypochlrysops C. & R. Felder (Lepidoptera: Lycaenidae)*. Entomonograph Vol. 7. E.J. Brill/Scandinavian Science Press.

Editors Note:

The above report by one of our northern members, David Lane, has been reprinted. Unfortunately a corrupted version of the original manuscript was released and the missing sections were detected too late to halt the printing. The former version which appeared in the previous issue of *Victorian Entomologist* 23(1): 10-11, should now be ignored and the editors apologise to David Lane for this secretarial mishap.

MT PIPER: A BUTTERFLY 'THREATENED COMMUNITY'

(summary of talk to the Entomological Society of Victoria, 19 February 1993)

T.R. New

Department of Zoology, La Trobe University, Bundoora, Vic. 3083

Mt Piper, an isolated quartz plug extending from 230-456 km high near Broadford is a well-known locality to lepidopterists. It has recently assumed considerable importance in conservation activities in Victoria, because of designation of the two co-occurring Anthlues *Acrodipsas brisbanensis* and *A. myrmecophila* as a threatened community ('Butterfly Community No. 1') under the Flora and Fauna Guarantee Act 1988. These species are also listed under Schedule 2 of the Act, so that they cannot be collected legally in Victoria without a permit. The other notable lycaenid recorded from Mt Piper is *Ogyris genoveva* which, like the *Acrodipsas* spp., uses the prominent site for hill-topping.

Mt Piper has been an educational reserve since the late 1970s, but is now the subject of conservation management and a program to clarify the biology and status of the butterflies there. The former vehicle track to near to top of the mountain has been closed, and a walking track constructed from the car-park (with information boards) at the base. Feral stock is now excluded, and recent applications for mining exploration permits have been turned down; extensive sanitary measures included removal of much industrial debris from the summit and vegetation rehabilitation.

During the last two seasons, David Britton, working from La Trobe University, has surveyed the butterflies of Mt Piper and (in 1992-93) has also investigated a number of other isolated hills in the region. A number of new species records have been made, and 34 species of butterflies are known for Mt Piper to February 1993. A survey of the ants is also being made, and it is hoped to elucidate the biology of the target butterflies during the next season. Both *Acrodipsas* species have been seen on Mt Piper in the two survey seasons, but only in very small numbers - but *A. myrmecophila* has not been seen at any of the other nine sites investigated, and is known at present in Victoria only for Mt Piper.

BOOK REVIEW

"Flying Colours. Common Caterpillars, Butterflies and Moths of South-eastern Australia" by Pat and Mike Coupar

New South Wales University Press, Kensington, 1992.

119 pp, 4 black & white plates, 178 colour plates, 8 figures, 255 x 192 mm, hard cover. ISBN 0 86840 021 1 \$19.95

A classic looper caterpillar, striped in yellow, green, black and white probably still inhabits the cypress hedge next door to my childhood home.

A common species in Melbourne, it has been noticed often in the intervening twenty five years, always with a slight sense of irritation. Its name and the appearance of the adult remained a mystery. What a pleasure then to find it, and the moth it becomes, illustrated in splendid living colour at several times life size in this excellent little book.

The Coupars' purpose is "to create an awareness and understanding of caterpillars and their dramatic transformation into the adult butterfly or moth ... and provide you with a little insight into (their) amazing world ...". They did not intend to produce a comprehensive identification manual or academic tome, but acknowledge that the book will be useful for identification. And academic standards are met with distinction.

Part one of the book consists of text and line drawings which detail the evolutionary history of the Lepidoptera, their life cycles, and the structure of caterpillars ("The caterpillar has 13 body segments behind the head. The first three are thoracic segments, and each one bears a pair of jointed legs with a claw at the tip. These are the true legs. The remaining ten segments are abdominal segments, with the last two being fused together. Prolegs are found on some or all of third, fourth fifth, sixth and tenth abdominal segments, the pair on the last segment being known as anal claspers"). Part one also includes sections on camouflage and defence; predators, parasites and diseases; finding, collecting and rearing ("Remember: do not overcrowd caterpillars, keep cages out of direct sunlight, avoid condensation, clean out droppings regularly, provide fresh leaves from the foodplant regularly"); attracting Lepidoptera to your garden ("you must create the right habitat"), and identification. The text is admirably straightforward, free of jargon and informative and although it is pitched at the beginner's level, everyone should find their knowledge expanded. The text is peppered with numerous insights and invaluable tips derived from the authors' long experience in caterpillar rearing (e.g. the sedge leaves on which larval Hesperidae feed "have a tendency to curl inwards and trap the caterpillar. We have solved this problem by folding the strip of sedge backwards on itself"). A novel chart showing silhouettes of the main types of caterpillars provides a useful quick guide for identification to family level.

The bulk of the book deals with the chosen species in alphabetical family name order, one species per page, the butterflies featured separately. A single paragraph details the basic biology of each family illustrated. The text provides the scientific and common names (some of which are new), a description of the larva, pupation site, and adult, a summary of the foodplants, the geographic range, seasonal occurrence and habitat. Many of the species illustrated can be found throughout Australia and the majority of the remainder are found in four or five states. No microlepidoptera are featured.

The colour plates illustrate living larvae and adults of 22 butterfly and 66 moth species while an additional two plates show the case of a psychid and its larva. The underside of the wings is shown for 16 of the 23 butterflies. In four cases the photographs of the adult also show the pupa, pupal case or cocoon. One larval photo also includes attendant ants. All, or nearly all the larvae are shown on their natural food plants. The adults are also shown on larval food plants, on flowers at which they feed or substrates, such as bark, on which they commonly rest. The black and white photographs show four species of parasites identified to the family level. Without exception the photographs, taken in a studio setting, are in excellent focus and well lit, the colour is realistic and the stance or posture of the insects is not artificial. Most of the adults are in perfect condition, having been reared from larvae.

There are a number of new food plant records for the moths including *Olearia* for *Anthela acuta*, *Pinus* for *A. nicotiae* and *Chelepteryx chelepteryx*, and *Taraxacum* for *Xanthiothoe vicissuta*. Two species of moths are identified only to genus and these are from groups which require taxonomic revision, but it might have been preferable to feature species which could be fully identified.

It is one of the tasks of reviewers to seek out inaccuracies. I have observed flight activity of *Spilosoma glatignyi* in the last two weeks of November, so "summer and autumn" is not quite accurate. The larvae of *Junonia villida* often feed in the open during the day, although it may be primarily a nocturnal feeder. Perhaps space limitations have precluded a little too much: for example *Zizina labradus* often has pink larvae, and the diagnostic white triangle on the forewing of the Emperor Gum Moth enables it to be easily distinguished from the Helena Gum Moth. Only a few typographical errors have been noticed: the wingspan of one species is given as 90-00 mm (p.28), *Papilo* instead of *Papilio* (p.113), gum leaf skeletonizer (p.119) versus gum leaf skeletoniser (p.77). The species name authors should have been included.

The Coupars have discovered much that was heretofore unknown about the life cycles of southern Australian moths. This book spreads the message about what fun it is and records some of their discoveries. It has a refreshing feel due to the strong emphasis on living insects and how to rear them and the underlying message of conservation and environmental care. It would be a particularly valuable addition to the library of a young naturalist and is recommended for adult readers also. Let us all contribute to sales of this work and make it sufficiently successful economically to enable the Coupars to produce a second volume, covering another few score of common moths and butterflies.

Ian Faithfull

BOOK REVIEW

"SPIDERS commonly found in Melbourne and surrounding regions" by Ken Walker and Graham Milledge

Royal Society of Victoria, Melbourne. 1992. 64 pages, 16 colour illustrations, 20 h/w illustrations, size 180 X 180 mm. ISBN 0-9587785-3-4. Cost per copy \$9.75 including package and postage within Australia. Order from: The Royal Society of Victoria, 9 Victoria Street, Melbourne, Vic 3000.

Spiders are one of the major groups of invertebrates that have successfully adapted to life on land. They owe their success to their use of silk, not just for making either protective retreats or cocoons for their eggs but more importantly for making of snares. Nearly all spiders have venom for killing their prey. In Australia there are only two species that are dangerous to humans - the red-back spider and the Sydney funnel-web spider.

The present publication is the revised and much improved version of Ken Walker's "Spiders Commonly Found in Melbourne" published by the National Museum of Victoria in 1982.

The book deals with the 20 spiders from Melbourne and surrounding regions for which identification is most commonly sought at the Museum of Victoria. Obviously the book is aimed at any one who encounters spiders, either inside the house, in the garden or in the sheds. It is a first hand source for finding out what kind of spider it is, a bit about its biology and whether it is dangerous and the normal symptoms its bite may cause. The book opens with a brief introduction, followed by biology of spiders including information on webs, reproduction, dispersal and spider numbers. Following this is a valuable and welcome section on venomous spiders, treatment for venomous spider bite, specifically for red-back spider bite and for less venomous spider bites. A simplified outline drawing of structure of a spider, and an interesting legends and myths section is provided. Additionally a list of commonly found spiders in Melbourne and surrounding areas, arranged in whether they are web builders or hunters and whether they live inside the house, exposed exteriors, verandahs and inside sheds, or in the garden. The footer note "The Sydney funnel-web does not occur in Melbourne" is reassuring to the large number of enquirers who fear the dreaded Sydney species occurring in their area. Under the Victorian funnel-web spider I would have liked to see a brief description of how it differs from the dreaded Sydney funnel-web.

The major section of the book, the description of individual species, follows with each species receiving a 2 page coverage, the right hand page the text and left hand page opposite the h&w illustration. The text has the following sections: the accepted common name, and the scientific name; the identification features, specifically noting the lengths of adults, web, colour and the form; the habitat and biology; and the bites (symptoms, etc). The h&w illustrations are all drawn by Graham Milledge and are of good quality. For several species, as complementary to the text and the h&w illustrations, there are quality colour plates (in all 16 figures) occupying four pages as centre fold. A couple of very minor comments: 1. Some irregularities in the usage of font sizes for headings or sub headings on a few pages, e.g. page 13 and 33; 2. White tailed spider, page 49 - no reference to the colour plate (figure 4) under the female.

A valuable section of suggested reading and information on the major natural history societies from which the reader can "investigate further" completes the book.

All in all a neatly produced book. With the well designed eye-catching cover it will be recognised by the Melbourne public as the little red spider book! The book would be valuable to any one wanting to know about the common spiders in Melbourne and surrounding regions, whether they are dangerous, the nature of symptoms their bites may cause and first aid treatment.

Finally, the Royal Society of Victoria should be congratulated for sponsoring the publication of this book through the Lynette Young Publishing Fund, as part of Society's worthy programme to disseminate science to the public.

M. Malipatil

RECENT ARTICLES OF INTEREST (compiled by Ian Faithfull)

Bennett, S., Brereton, R., Mansergh, I., Berwick, S., Sandiford, K. & Wellington, C., 1991. The potential effect of the enhanced greenhouse climate change on selected Victorian fauna. *Arthur Rylah Institute Tech. Report Series* No.123, Dept.Conservation & Environment, Victoria. The BIOCLIM bioclimatic analysis and prediction system, the 1.1 million record Atlas of Victorian Wildlife and CSIRO greenhouse climate change forecasts are used to indicate the future for 40 vertebr. & 2 invertebr.spp. (Giant Gippsland Earthworm, *Megascolides australis*; Altona Skipper, *Hesperilla flavescens*). The bioclimate of the worm disappears after a 1 degree C temp. increase. The skipper currently has a bioclimate range of 1221 sq.km of which 680 sq.km are in conserv.reserves, but the range disappears at +3 deg. & at +2 deg. only 15 sq.km is in conserv.reserves. The res.system requires enhanced robustness and wildlife needs intensive mgt. where self adjustment to change cannot occur.

Bailey, Martin, 1992. Saviours of the vanishing wings of magic. *The Observer* (U.K.) 2 August. Nearly half of Britain's 54 surviving butterfly spp. are endangered and there were 100 times more butterflies in Britain in 1882 than now. The Large Copper, Mazarine White and Black Veined White are extinct, the Large Blue died out in 1979 and the Large Tortoiseshell was declared extinct in 1992. The British Butterfly Conservation Society, set up in 1968, & now with a full time director and membership of 8,500, blames modern farming practices which have eliminated diverse pastures, drained swamps, removed hedges and destroyed butterflies with fertilisers, herbicides and pesticides. Urban expansion, roadbuilding and pollution are also blamed. Collecting threatens rare species. Reintroduction ventures include the Chequered Skipper extinct in England since 1975. The Society owns its own reserves, Park Corner Heath in Essex and Catfield Fen in Norfolk. Butterfly Conservation, PO Box 222 Dedham, Essex, CO7 6EY, UK. Membership 10 pounds p.a.

Kuschel, G., 1990. Beetles in a Suburban Environment: A New Zealand Case Study. The Identity and Status of Coleoptera in the Natural and Modified Habitats of Lynfield, Auckland (1974-1989). DSIR Plant Protection Report No.3, N.Z. Dept.Scientific & Industrial Research, Auckland. 120 pp., 230 figs., \$NZ29.95 from Library, Mt.Albert Research Centre, DSIR, Private Bag, Auckland. This amazing book details the 982 beetle spp., 753 endemic, in 65 families, found in a coastal suburb of Auckland covering an area of about 4 square km during the 15 year period. Collection was by sweeping and beating vegetation, sifting litter, floating from stream beds, washing and sifting soil, netting, baiting, pit-trapping, malaise trapping, misting with insecticides and rearing. All habitat types were examined incl. tree trunks, live, sound and decayed wood, fungi, leaf litter, garden compost, dung, carrion, stream banks and beds, soil, beach sand, wrack and water bodies. At the end of the survey additional spp. were still being found at the rate of one or two per fortnight. Lynfield is the type locality of 22 spp. but 130 indigenous spp. collected in the survey await formal names. About half the introd. beetles, 113 spp., are Australian adventives. Native bush covers perhaps one fifth of the suburb and 91% of the native species were not found outside it. Only 9 native vertebrate species are known. A main component of the book is a systematic annotated list of spp. providing habitat data, first NZ reports of the sp., and other notes. Another section has very detailed black and white illustrations of 108 of the species. In the words of A.C.G.Heath (*NZ Entomologist* 15:91-2) this is "a materful study".

Allsopp, P.G., 1989. Revision of Systellopini (Coleoptera: Scarabaeidae: Melolonthinae). *Invertebr.Taxon.* 3:197-227. An indigenous tribe of six genera and nineteen species. *Sarotromerus*, *Systellopus*, *Sphyrocallus*, *Prochelyna*, *Enanillus*, *Chilodiphus*. Mostly Eyrean with one species from Cape York Peninsula. Most have only been rarely collected.

Allsopp, P.G., 1990. Revision of the Pachytrichini (Coleoptera: Scarabacidae: Melolonthinae). *Invertebrate Taxonomy* 4:753-61. Five *Pachytricha* species, all from Western Australia, comprise the tribe. Biology virtually unknown.

Hawkewood, T.J., 1991. Insect pollination of *Acacia bidwillii* Benth. (Mimosaceae) at Townsville, northern Queensland, Australia. *Giornale Italiano di Entomologia* 5:219-238 (In English). 47 spp. of Coleopt., Lepidopt., Hymenopt. & Hemiptera collected were examined for pollen loads. Feeding & flight patterns of common spp. noted. Bees & wasps the most important cross-pollinators, with beetles also important in self pollination.

Hawkeswood, T.J., 1992. Beobachtungen an Schmetterlingen in Papua Neuguinea. *Entomologische Zeitschrift* 102:294-9. (In German). General account of the butterfly fauna (papilionids, nymphalids, pierid) of the Passam and Wewak areas, East Sepik Province.

Scoble, M.J., 1992. **The Lepidoptera: Form, Function and Diversity**. Oxford University Press in Association with Natural History Museum, London, 352 pp., 250x180 mm. \$A91.75. Feeding, flight, migration, hearing, sound production, defence, environmental significance as herbivores and prey, global overview of biology, classification and evolutionary relationships.

Aluja, M. & Licdo, P. (Eds.), 1992. **Fruit Flies. Biology and Management**. Springer-Verlag, New York, 490 pp., 110 figs., \$100. Proceedings of recent international symposium.

Oakeshott, J. & Whitten, M.J., 1992. **Molecular Approaches to Fundamental and Applied Entomology**. Springer-Verlag, New York, c.490 pp., 59 figs. \$208. Fruit fly genetics, molecular basis of insect meiosis, tissue differentiation, insecticide resistance, etc., molecular tools for studying insect systematics and population biology, genetic engineering of insects and microbial insecticides, etc.

Meadows, P.S.(Ed.), 1992. **The Environmental Impact of Burrowing Animals and Animal Burrows**. Symposia of the Zool.Soc.of London No.63. Oxford University Press, 368 pp., 44 figs, 235x155 mm. \$115.50. Includes ants, beetles, wood borers and other invertebrates and vertebs., both aquatic and terrestrial.

Elgør, M.A. & Crespi, B.E. (Eds.), 1992. **Cannibalism. Ecology and Evolution Among Diverse Taxa**. Oxford University Press, 340 pp., 10 figs., 235x155 mm, \$98. Includes material on sexual cannibalism in spiders, cannibalism in beetles and subsocial and eusocial insects.

Elton bugs off from concert. *Herald-Sun* (Melbourne) 20 Feb. 1992, pp.1-2. Pop star Elton John left the stage of a Melbourne concert 20 minutes early after an insect flew into his mouth. "There were crickets and cockroaches all over the stage". A flight of the black field cricket is thought to be responsible.

Thanks to P.Carwardine, K.Dunn, D.King, I.Endersby, T.Hawkeswood for contributions to this column since the last acknowledgements.

NOTICE OF ANNUAL GENERAL MEETING

Members of the Society are advised that the Annual General Meeting will be held at Clinics Ross House, National Science Centre, 191 Royal Parade, Parkville, commencing at 8 p.m. on Friday 18 June 1993.

AGENDA

1. Approval of minutes of AGM held on 19 June 1992
2. Treasurer's Report
3. Editor's Report
4. Reports from committees
5. Election of Council for 1993-94
6. Expression of interest for joining committees
7. Presidential Address
8. General Business

Nominations for positions on the Council, in writing and signed by the proposer, seconder and nominee, must be in the hands of the Secretary seven days prior to the Annual General Meeting. Nomination and Proxy forms may be obtained from the Secretary.

ON THE GRAPEVINE

Butterfly enthusiast Peter Fox shifted to Rockhampton earlier this year in conjunction with his tertiary studies with the University of Central Queensland. Between classes Peter has found himself amongst the tropical vine thickets turning up some unusual new records which we may hear more about in the future. He reported a number of species present on Mount Archer during early autumn and intends to investigate the Yeppoon-Byfield area shortly. Peter would be glad to hear from other collectors who are familiar with the area and could steer him in the direction of some 'good' spots for him to explore. Peter advises that he can be contacted through his former address at Pialha or c/- 170 Denham St., Rockhampton, Qld 4700.

OFFICE BEARERS

- PRESIDENT:** *Ross Field*, 51 Sandells Road, Tecoma 3160.
ph 785 0111 (BH), 754 2085 (AH).
- VICE-PRESIDENTS:** *Peter Carwardine*, 2A Victoria Road, Malvern 3144.
ph. 571 8958 (AH)
Beresford Vurdy, P.O. Box 1055, Bendigo, Victoria 3550.
- HON SECRETARY:** *Ken Walker*, Museum of Victoria, 71 Victoria Crescent,
Abbotsford 3067. ph. 419 5200
- HON TREASURER:** *Ian Endersby*, 56 Looker Road, Montmorency 3094.
ph. 652 6755 (BH), 435 4781 (AH)
- HON EDITORS:** *Mali Malipatil and Kehyn Dunn*, Institute of Plant Sciences,
Swan Street, Burnley 3121. ph. 810 1527 fax 819 5653
- EXCURSIONS SEC:** *Peter Carwardine*, 2a Victoria Road, Malvern 3144. ph. 571 8958 (AH)
- PUBLIC OFFICER:** *Ian Endersby*, 56 Looker Road, Montmorency 3094.
ph. 652 6755 (BH) 435 4781 (AH)
- PAST PRESIDENT:** *Mark Hunting*, 49 Menzies Drive, Sunbury 3429.
ph. 744 9144 (BH), 744 5178 (AH)
- COUNCILLORS:** *D. Dobrosak, T. New*

CONTRIBUTIONS TO THE VICTORIAN ENTOMOLOGIST

The Society welcomes contributions of articles, papers or notes pertaining to any aspect of entomology for publication in this Bulletin. Contributions are not restricted to members but are invited from all who have an interest. Material submitted should be responsible and original. Statements and opinions expressed are the responsibility of the respective authors and do not necessarily reflect the policies of the Society.

Contributions may be typed on A4 paper or *preferably* sent on an **IBM formatted disk** in *WordPerfect* or other word processing package (clearly specified) with an enclosed hard copy print out. Urgent submissions may be faxed.

The deadline for each issue is the final Friday of each odd month.

ADVERTISING

The charge for advertising is \$5.00 per half page.

The *Victorian Entomologist* is printed at the AGMEDIA, 3/166 Wellington Parade, East Melbourne, Victoria.

CONTENTS

	Page
Minutes of General Meeting, 19 February 1993	21
Minutes of Council Meeting, 19 March 1993	23
A new larval host plant for the common imperial white butterfly by M.F. Braby	25
A migration of <i>Delias harpalyce</i> (Donovan) in the Hunter Valley, NSW by C.N. Smithers	28
Oviposition and territorial behaviour in <i>Toxidia rietmanni</i> by K. Dunn	29
Common imperial blue, <i>Jalmenus evagoras evagoras</i> (Donovan), an additional Wattle Park butterfly by Ian Faithfull	34
A new food plant record for <i>Hypochrysops theon medocus</i> (Fruhstorfer) by D. Lane	35
Mt Piper: a butterfly 'threatened community' by T.R. New	37
A description of meat ant behaviour, in relation to the shielding of food from the sun by J.D. Boatwood	38
Book review: "Flying Colours. Common Caterpillars, Butterflies and Moths of South-eastern Australia"	39
Book review: "SPIDERS commonly found in Melbourne and surrounding regions"	40
Recent articles of interest	42
Notice of Annual General Meeting	44
On the Grapevine	44

DIARY OF COMING EVENTS

16 April - General Meeting

Talk by Ian Endersby on "Insect Watching"

21 May - Council Meeting

18 June - Annual General Meeting

Scientific names contained in this document are *not* intended for permanent scientific record, and are not published for the purposes of nomenclature within the meaning of the *International Code of Zoological Nomenclature*, Article 8(b). Contributions are not refereed, and authors alone are responsible for the views expressed.

ENTO P395.705
V.645